



In re application: **Dario B. Crosetto**

Serial No.: **10/706,821**

Filed: **November 10, 2003**

For: **METHOD AND APPARATUS  
FOR IMPROVING PET DETECTORS**

§ Confirmation No.: **Unknown**  
§  
§ Group Art Unit: **Unassigned**  
§  
§ Examiner: **Unassigned**  
§  
§ Attorney Docket No.: **510974-600005**  
§  
§

Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450

#### INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to the guidelines for Information Disclosure Statements set forth in 37 C.F.R. §§1.97-1.98 and MPEP §609, Applicant submits herewith patents, publications, or other information of which he is aware, which he believes may be material to the examination of this application and in respect of which there may be a duty of disclosure in accordance with 37 C.F.R. §1.56.

A list of patent(s) and/or publications(s) is set forth on the attached Form PTO/SB/08A. A copy of each foreign application and non-patent literature is enclosed.

It is submitted that these references do not disclose, teach, or suggest the present invention and thus the claims herein are patently distinct therefrom.

While this Information Disclosure Statement may be "material" pursuant to 37 C.F.R. §1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is "prior art" for this invention unless specifically designated as such.

##### CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.10

I hereby certify that this correspondence, paper and/or fee is being deposited with the United States Postal Service as "Express Mail to Addressee Service" under 37 C.F.R. 1.10 in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

on December 4, 2003

by \_\_\_\_\_

Marsha S. Kappus

Marsha S. Kappus

In accordance with 37 C.F.R. §1.97(b) the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 C.F.R. §1.56(a) exists.

The information disclosure statement submitted herewith is being filed within three months of the filing date of the application or date of entry into the national stage of an international application or before the mailing date of a first Office Action on the merits, whichever event occurs last. 37 C.F.R. §1.97(b).

Any fees required for the proper filing of this Information Disclosure Statement should be withdrawn from the Jones Day Deposit Account No. 50-0566.

The person making this statement is the practitioner who signs below.

Respectfully submitted,



Rudolph J. Buchel, Jr., No. 43,448 \*

Date: December 4, 2003

JONES DAY  
P. O. Box 660623  
Dallas, TX 75266-0623  
Telephone: (214) 969-2990  
Facsimile: (214) 969-5100

ATTORNEY FOR APPLICANT

\* *Licensed in Florida  
Not licensed in Texas*

DEC 18 2003

PTO/SB/21 (08/00)

**TRANSMITTAL  
FORM**

*(to be used for all correspondence after initial filing)*

Total Number of Pages In This Submission

Application Number:	10/706,821
Filing Date:	November 10, 2003
First Named Inventor:	Dari B. Crisett
Art Unit:	Unassigned
Examiner Name:	Unassigned
Total Number of Pages In This Submission	Attorney Docket Number
	510974-600005

**ENCLOSURES (check all that apply)**

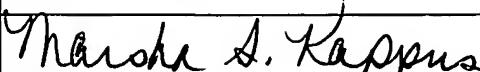
<input checked="" type="checkbox"/> Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement with references <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers <i>(for an Application)</i> <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) <i>(please identify below):</i> <b>Return Receipt Postcard</b>
Remarks:		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm or Individual Name	Rudolph J. Buchel, Jr. JONES DAY
Signature	
Date	December 4, 2003

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name	Marsha S. Kappus	
Signature		Date
	December 4, 2003	

DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.



<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				<b>C mplete if Known</b>	
Sheet	1	of	2	Application Number	10/706,821
				Filing Date	November 10, 2003
				First Named Investor	Dario B. Crosetto
				Art Unit	Unassigned
				Examiner Name	Unassigned
				Attorney Docket Number	510974-600005

<b>U.S. PATENT DOCUMENTS</b>					
		Document Number			
Examiner Initials*	Cite No. <sup>1</sup>	Number – Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	US-4,559,597	Dec. 17, 1985	Mullani	
	AB	US-4,563,582	Jan. 7, 1986	Mullani	
	AC	US-4,642,464	Feb. 10, 1987	Mullani	
	AD	US-4,677,299	June 30, 1987	Wong	
	AE	US-755,697	July 5, 1988	Wong	
	AF	US-4,864,138	Sep. 5, 1989	Mullani	
	AG	US-4,883,966	Nov. 28, 1989	Wong	
	AH	US-5,210,420	May 11, 1993	Hartz et al.	
	AI	US-5,241,181	Aug. 31, 1993	Mertens et al.	
	AJ	US-5,272,344	Dec. 21, 1993	Williams	
	AK	US-5,300,782	Apr. 5, 1994	Johnson et al.	
	AL	US-5,430,229	July 4, 1995	Voss	
	AM	US-5,453,623	Sep. 26, 1995	Wong et al.	
	AN	US-5,602,395	Feb. 11, 1997	Nellemann et al.	
	AO	US-5,608,221	Mar. 4, 1997	Bertelson et al.	
	AP	US-5,703,369	Dec. 30, 1997	Mori	
	AQ	US-5,753,917	May 19, 1998	Engdahl	
	AR	US-5,757,006	May 26, 1998	DeVito et al.	
	AS	US-5,760,401	June 2, 1998	Nellemann et al.	
	AT	US-5,841,140	Nov. 24, 1998	McCroskey et al.	
	AU	US-5,847,396	Dec. 8, 1998	Lingren et al.	
	AV	US-5,969,358	Oct. 19, 1999	DiFilippo et al.	
	AW	US-5,986,266	Nov. 16, 1999	Andreaco et al.	
	AX	US-5,998,793	Dec. 7, 1999	Shao et al.	
	AY	US-6,008,493	Dec. 28, 1999	Shao et al.	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

O I P E  
DEC 08 2003  
SEARCHED INDEXED  
SERIALIZED FILED

TO/SB/08A (10-01)

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)				<b>C mplete if Known</b>	
Sheet	2	of	2	Application Number	10/706,821
				Filing Date	November 10, 2003
				First Named Inventor	Dario B. Crosetto
				Art Unit	Unassigned
				Examiner Name	Unassigned
				Attorney Docket Number	510974-600005

<b>U.S. PATENT DOCUMENTS</b>					
Examiner Initials*	Cite No.	Document Number Number – Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AZ	US-6,140,650	Oct. 31, 2000	Berlad	
	ABA	US-60/204,900	May 16, 2000	Crosetto	
	ABB	US-60/215,667	June 30, 2000	Crosetto	
	ABC	US-60/250,615	Nov. 30, 2000	Crosetto	
	ABD	US-60/258,204	Dec. 20, 2000	Crosetto	
	ABE	US-60/261,387	Jan. 15, 2001	Crosetto	
	ABF	US-60/309,018	July 31, 2001	Crosetto	
	ABG	US-60/424,933	Nov. 9, 2002	Crosetto	
	ABH	US-5,907,593	May 25, 1999	Hsieh et al.	
	AGI	US-5,937,202	Aug. 10, 1999	Crosetto	
	AGJ	US-5,949,842	Sep. 7, 1999	Schafer et al.	
	AGK	US-6,035,013	Mar. 7, 2000	Orava et al.	

<b>FOREIGN PATENT DOCUMENTS</b>					
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> – Number <sup>4</sup> – Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	BA	CA 2,252,993	May 6, 2000	Saoudi et al.	
	BB	CA 1245375	Nov. 22, 1988	Lecomte	

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

O I P E  
DEC 08 2003

PTO/SB/08B (10-01)

Substitute for form 1449B/P-10

INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT  
(use as many sheets as necessary)

Sheet

1

of

8

Complete if Known

Application Number	10/706,821
Filing Date	November 10, 2003
First Named Inventor	Dario B. Crosetto
Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	510974-600005

## OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	CA	KARP, Joel S. et al., "Performance Standards in Positron Emission Tomography," Journal of Nuclear Medicine, Dec. 1991, pp. 2342-2350, Vol. 12, No. 32.	
	CB	WATSON, C.C. et al., "Design and Performance of a Single Photo Transmission Measurement for the ECAT ART," Siemens ECAT ART.	
	CC	SEIDEL, J. et al., "Experimental Estimates of the Absolute Sensitivity of a Small Animal PET Scanner with Depth-of-Interaction Capability," IEEE 2000-777.	
	CD	Technical Data, "Nuclear Medicine/PET, Discovery VI," GE Medical Systems, Feb. 2002.	
	CE	"Advance NXi, Whole-Body Positron Emission Tomography System S9110NF/S9110NM," GE Medical Systems, 2000.	
	CF	JOHNSTON, Brian D. et al., "Automated Data Acquisition and Analysis for Evaluation of PET Detector Units," General Electric Systems, pp. 873-875, Milwaukee, WI.	
	CG	LEWELLEN, T.K. et al., "Investigation of the Performance of the General Electric ADVANCE Positron Emission Tomograph in 3D Mode," IEEE Transactions on Nuclear Medicine, Aug. 1996, pp. 2199-2206, Vol. 43, No. 4.	
	CH	LEWELLEN, T.K. et al., "Investigation of the Count Rate Performance of General Electric Advance Positron Emission Tomograph," IEEE Transactions on Nuclear Science, Aug. 1995, pp. 1051-1057.	
	CI	SMITH, R.J. et al., "A Practical Method for Randoms Subtraction in Volume Imaging PET from Detector Singles Countrate Measurements," University of PA, Dept. of Radiology, 1996, pp. 992-996, Philadelphia, PA.	
	CJ	CUTLER, P. Duffy et al., "An Approximate Method for Acquisition and Reconstruction of Volumetric PET Data," IEEE, 1994, pp. 1209-1211.	
	CK	SMITH, Robin J. et al., "The Countrate Performance of the Volume Imaging PENN-PET Scanner," IEEE Transactions on Medical Imaging, Dec. 1994, pp. 610-618, Vol. 13, No. 4.	
	CL	MOISAN, c. ET AL., "A Count Rate Model for PET and Its Applications to an LSO HR PLUS Scanner," IEEE, 1997, pp. 1186-1190.	
	CM	BUDINGER, Thomas F., "PET Instrumentation: What are the Limits?" Seminars in Nuclear Medicine, July 1998, pp. 247-267, Vol. XXVIII, No. 3.	
	CN	WEAR, James A., "A Model of the High Count Rate Performance of NaI (Tl)-Based PET Detectors," IEEE, 1998, pp. 1203-1207.	
Examiner Signature		Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449B/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)			<i>Complete if Known</i>	
Sheet	2	of	8	Attorney Docket Number
			10/706,821	10/706,821
			November 10, 2003	November 10, 2003
			Dario B. Crosetto	Dario B. Crosetto
			Unassigned	Unassigned
			Unassigned	Unassigned
			510974-600005	510974-600005

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	CO	SMITH, R.J. et al., "Methods to Optimize Whole Body Surveys with C-PET Camera," IEEE, 2000.	
	CP	KOPS, Elena Rota et al., "Performance Characteristics of an Eight-Ring Whole Body PET Scanner," Journal of Computer Assisted Tomography, 1990, pp. 437-445, Vol. 14, No. 3.	
	CP	CHERRY, Simon R., "Recent advances in instrumentation for positron emission tomography," Nuclear Instruments & Methods in Physics Research, 1994, pp. 577-582.	
	CQ	PAANS, A.M.J., "The Imaging of Positron Emitters in Single Photon and Coincidence Mode: Evaluation of SPECT and PET Systems," 18 <sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Amsterdam, 1996, 3.6.2.: PET and SPECT Imaging.	
	CR	KARP, J.S., et al., "Performance Measurements for the GSO-based Brain PET Camera (G-PET)," University of PA, Dept. of Radiology.	
	CS	BANDETTINI, A. et al., "An electronic coincidence triggering system for 'in-frame' DAQ from a double side $\mu$ -strip silicon detector exposed to X-rays," IEEE, 1993, pp. 517-519.	
	CT	MANKOFF, D.A. et al., "A local coincidence triggering system for PET tomographs composed of large-area positron-sensitive detectors," IEEE Transactions on Nuclear Science, Apr. 1990, pp. 730-736, Vol. 37, No. 2.	
	CU	DENT, H.M. et al., "A real time digital coincidence processor for positron emission tomography," IEEE Transactions on Nuclear Science, Feb. 1986, pp. 556-559-Vol. 33, No. 1.	
	CV	MERTENS, J.D. et al., "Digital Coincidence Detection: A Scanning VLSI Implementation," IEEE Transactions on Nuclear Science, Dec. 1993, Vol. 40.	
	CW	KARP, J.S. et al., "Event localization in a continuous scintillation detector using digital processing," IEEE Transactions on Nuclear Science, Feb. 1986, pp. 550-555, Vol. 33, No. 1.	
	CX	FREIFELDER, Richard, "Design and Performance of the HEAD PENN-PET Scanner," IEEE Transactions on Nuclear Science, Aug. 1994, pp. 1436-1440, Vol. 41, No. 4.	
	CY	KARP, J.S. et al., "Factors Affecting Accuracy and Precision in PET Volume Imaging," Journal of Cerebral Blood Flow and Metabolism, 1991, pp. A38-A-44, Vol. 11.	
	CZ	KARP, Joel S., "Effect of Increased Axial Field of View on the Performance of a Volume PET Scanner," Nuclear Science Symposium and Med. Imaging Conference, 1991, Conference Record of the 1991 IEEE, 1991, pp. 1574-1578, Vol. 3.	
Examiner Signature		Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

O P E  
DEC 08 2003

PTO/SB/08B (10-01)

Substitute for form 1449B/PTO			<i>Complete if Known</i>		
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>			Application Number	10/706,821	
			Filing Date	November 10, 2003	
			First Named Investor	Dario B. Crosetto	
			Art Unit	Unassigned	
			Examiner Name	Unassigned	
Sheet	3	of	8	Attorney Docket Number	510974-600005

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	CAA	KARP, J.S. et al., "Evaluation of Volume Imaging with the HEAD PENN-PET Scanner," University of PA, Department of Radiology, 1995, IEEE, 1995, pp. 1877-1881.	
	CAB	KARP, Joel S. et al., "Three-Dimensional Imaging Characteristics of the HEAD PENN-PET Scanner," Journal of Nuclear Medicine, Apr. 1997, pp. 636-643, Vol. 38, No. 4.	
	CAC	Technical Data, ECAT® ACCEL Tomograph.	
	CAD	Saoudi, A. et al., "Investigation of Depth-of-Interaction by Pulse Shape Discrimination in Multicrystal Detectors Read Out by Avalanche Photodiodes," NSS Conference, 1998 IEEE, 1998, pp. 1078-1082, Vol. 2.	
	CAE	FREIFELDER, R. et al., "Data acquisition with a positron emission tomograph," <a href="http://www.lecroy.com/lrs/EPP/freif.htm">http://www.lecroy.com/lrs/EPP/freif.htm</a> .	
	CAF	NEWPORT, D.F. et al., "An ASIC Implementation of Digital Front-End Electronics for a High Resolution PET Scanner," IEEE Transactions on Nuclear Science, Aug. 1993, pp. 1017-1019, Vol. 40, No. 4.	
	CAG	PAULUS, Michael J. et al., A Low-Noise, Wide-Band CMOS Charge-sensitive Preamplifier for use with APD/LSO PET Detectors," IEEE Transactions on Nuclear Science, June 1996, pp. 1666-1671, Vol. 43, No. 3.	
	CAH	SHAO, Yiping, "A Study of Depth of Interaction Measurement Using Bent Optical Fibers," Crump Institute of Biological Imaging, Dept. of Molecular and Medical Pharmacology, UCLA School of Medicine, 1999, pp. 1440-1444.	
	CAI	DERENZO, S.E., "Initial Characterization of a Positron-Sensitive Photodiode/BGO Detector for PET," IEEE Transactions for Nuclear Science, Feb. 1989, pp. 1084-1089, Vol. 36, No. 1.	
	CAJ	HUBER, J.S., "Calibration of a PET Detector Module that Measures Depth of Interaction," IEEE Transactions on Nuclear Science, June 1998, pp. 1268-1272, Vol. 45, No. 3.	
	CAK	YAMAMOTO, S., "A GSO depth of interaction detector for PET," IEEE Transactions on Nuclear Science, June 1998, pp. 1078-1082, Vol. 45, No. 3.	
Examiner Signature		Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

DEC 8 8 2003

PTO/SB/08B (10-01)

Substitute for form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
(use as many sheets as necessary)

Sheet

4

of

8

Complete if Known

Application Number	10/706,821
Filing Date	November 10, 2003
First Named Inventor	Dario B. Crosetto
Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	510974-600005

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	CAL	YOUNG, J.W. et al., "Optimum Bandwidth Usage in Digital Coincidence Detection for PET," CTI PET Systems, Inc., 1994, pp. 1205-1208.	
	CAM	MUEHLLEHNER, G. et al., "A hexagonal bar positron camera: problems and solutions," IEEE Transactions on Nuclear Science, Feb. 1983, pp. 652-659, Vol. NS-30, No. 1.	
	CAN	JONES, W.F. et al., "Next Generation PET Data Acquisition Architectures," NSS 95 Conference Record, 1997, pp. 1202-1207, Vol. 44, No. 3.	
	CAO	BINKLEY, David M. et al., "A Custom CMOS Integrated Circuit for PET Tomograph Front-End Applications," IEEE, 1994, pp. 867-871.	
	CAP	CUTLER, P. Duffy et al., "Use of Digital Front-End Electronics for Optimization of a Modular PET Detector," IEEE Transactions on Medical Imaging, June 1994, pp. 408-418, Vol. 13, No. 2.	
	CAQ	YOUNG, John W. et al., "FPGA Based Front-End Electronics for a High Resolution PET Scanner," CTI PET Systems, Inc.	
	CAR	YU, Haiming et al., "A High-Speed and High-Precision Winner-Select-Output (WSO) ASIC, pp. 656-660, University of Washington Medical Center, Seattle, WA.	
	CAS	STENSTROM, P. et al., "Evaluation of a Data Acquisition System for SPECT (PET)," IEEE, 2000.	
	CAT	RAMSDEN, Z. He et al., "Two Data Acquisition And Processing Systems For A Compact Gamma-Camera, IEEE Transactions on Nuclear Science, Aug. 1993, pp. 1165-1168, Vol. 40, No. 4.	
	CAU	CHERRY, Simon R. et al., "Optical Fiber Readout of Scintillator Arrays using a Multi-Channel PMT: A High Resolution PET Detector for Animal Imaging," IEEE Transactions on Nuclear Science, June 1996, pp. 1932-1937, Vol. 43, No. 3.	
	CAV	LEWELLEN, T.K. et al., "An XYE Acquisition Interface for General Electric Starcam Anger Cameras," University of Washington, Seattle, Washington, pp. 1861-1865.	
	CAW	LEWELLEN, T.K. et al., "A Data Acquisition System for Coincidence Imaging Using a Conventional Dual Head Gamma Camera," IEEE, 1997, pp. 1305-1309.	
	CAX	BINKLEY, David M. et al., "An Electronic Detector Simulator for Testing Positron, Energy, and Timing Spectral Performance of Detector Electronics," CTI PET Systems, Inc., No Date.	
Examiner Signature		Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

O P E R A T I O N S

DEC 08 2003

PTO/SB/08B (10-01)

Substitute for form 1449B/PTO		<i>Complete if Known</i>			
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)		Application Number	10/706,821		
		Filing Date	November 10, 2003		
		First Named Inventor	Dario B. Crosetto		
		Art Unit	Unassigned		
		Examiner Name	Unassigned		
Sheet	5	of	8	Attorney Docket Number	510974-600005

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	CBY	LI, HONG DI et al., "Electronics for a Prototype Variable Field of View PET Camera Using the PMT-Quadrant-Sharing Detector Array," IEEE, 1999, pp. 1227-1231.	
	CBZ	BINKLEY, David M. et al., "A Monolithic 2μm CMOS Constant-Fraction Discriminator for Moderate Time Resolution Systems," IEEE Transactions on Nuclear Science, Dec. 1991, pp. 1754-1759, Vol. 38, No. 6.	
	CCA	HUBER, J.S. et al., "Characterization of a 64 Channel PET Detector Using Photodiodes for Crystal Identification," IEEE Transactions on Nuclear Science, June 1997, pp. 1197-1201, Vol. 44, No. 3.	
	CCB	SIEGEL, Stefan et al., "Development of Continuous Detectors for a High Resolution Animal PET System," IEEE Conference Record, 1994, pp. 1662-1666.	
	CCC	HUBER, J.S. et al., "Conceptual Design of a High-Sensitivity Small Animal PET Camera with 4π Coverage," IEEE Transactions on Nuclear Science, June 1999, pp. 498-502, Vol. 46, No. 3.	
	CCD	MOSES, W.W. et al., "Performance of a PET Detector Module Utilizing an Array of Silicon Photodiodes to Identify the Crystal of Interaction," IEEE Transactions on Nuclear Science, Aug. 1993, pp. 1036-1040, Vol. 40, No. 4.	
	CCE	GRUBER, G.J. et al., "A Discrete Scintillation Camera Module Using Silicon Photodiode Readout of CsI(Tl) Crystals for Breast Cancer Imaging," IEEE Transactions on Nuclear Science, June 1998, pp. 1063-1068, Vol. 45, No. 3.	
	CCF	HUBER, J.S., "A LSO Scintillator Array for a PET Detector Module with depth of Interaction Measurement," IEEE, pp. 14-46 - 14-50.	
	CCG	CORREIA, J.A. et al., "Performance of Small Animal PET Instrument with 1mm Resolution," IEEE, 2000.	
	CCH	MCINTYRE, "A Positron Emission Tomograph Designed for 3/4 mm Resolution," IEEE, 1995, pp. 1357-1361.	
	CCI	DAHLBOM, Magnus et al., "Design Study of Future 3-D PET Systems," IEEE, 1995, pp. 1667-1671.	
	CCJ	CASEY, M.E. et al., "Investigation of LSO Crystals for High Spatial Resolution Positron Emission Tomography," IEEE Transactions on Nuclear Science, June 1997, pp. 1109-1113, Vol. 44, No. 3.	
	CCK	ROGERS, Joel G. et al., "Testing 144- and 256-crystal BGO Block Detectors," IEEE, NSS MIC Conference Record 1993, pp. 183701841, Vol. 3.	
Examiner Signature		Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449B/PTO  
U.S. TRADEMARK OFFICE

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
(use as many sheets as necessary)

Sheet 6 of 8

		Complete if Known	
Application Number	10/706,821		
Filing Date	November 10, 2003		
First Named Inventor	Dario B. Crosetto		
Art Unit	Unassigned		
Examiner Name	Unassigned		
Attorney Docket Number	510974-600005		

## OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	CCL	MOISAN, C. et al., "Simulating the Performances of an LSO Based Position Encoding Detector for PET," IEEE, 1997, pp. 1211-1215.	
	CCM	FICKE, D.C. et al., "A GSO(Ce) Block Type Detector for High Count Rate PET Applications," IEEE, 1995, pp. 1859-1863.	
	CCN	SAOUDI, A. et al., "A Novel APD-Based Detector Module for Multi-Modality PET/SPECT/CT Scanners," IEEE, 1999, pp. 1089-1093.	
	CCO	LECOMTE, R. et al., "An APD-based Quad Scintillator Detector Module with Pulse Shape Discrimination Coding for PET," IEEE, 1999, pp. 1445-1447.	
	CCP	LECOMTE, R. et al., "Investigation of GSO, LSO and YSO Scintillators using Reverse Avalanche Photodiodes," IEEE, 1998, 212-216.	
	CCQ	ROGERS, J.G. et al., "An Improved Multicrystal 2-D BGO Detector for PET," IEEE Transactions on Nuclear Science, 1992, pp. 1063-1068, Vol. 39, No. 4	
	CCR	MOSES, William W. et al., "PET detector modules based on novel detector technologies," Nuclear Instruments and Methods in Physics Research A 353, 1994, pp. 189-194.	
	CCS	DEL GUERRA, A. et al., "YAP-PET: a small animal Positron Emission Tomograph based on YAP:Ce finger crystals. No date.	
	CCT	VITTORI, F. et al., "The YAP Camera: An accurate Gamma Camera Particularly Suitable for New Radiopharmaceuticals Research," IEEE Transactions on Nuclear Science, Feb. 1997, pp. 47-53, Vol. 44, No. 1.	
	CCU	ROGERS, Joel G. et al., "A Practical Block Detector for a Depth Encoding PET Camera," 1996, pp. 1637-1641.	
	CCV	CHERRY, Simon R. et al., "A Comparison of PET Detector Modules Employing Rectangular and Round Photomultiplier Tubes," IEEE Transactions on Nuclear Science, Aug. 1995, pp. 1064-1068, Vol. 42, No. 4.	
	CCW	WIENHARD, Klaus et al., "Performance Evaluation of the Positron Scanner ECAT EXACT," Journal of Computer Assisted Tomography, Sep./Oct. 1992, pp. 804-813, Vol. 16, No. 5.	
	CCX	SPINKS, T.J. et al., "Performance of a new 3D-only PET scanner - the EXACT3D," IEEE 1997, pp. 1275-1279.	
Examiner Signature		Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

DEC 08 2003

PTO/SB/08B (10-01)

Substitute Form 1449B/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
(use as many sheets as necessary)

Sheet

7

of

8

**C mplete if Known**

Application Number	10/706,821
Filing Date	November 10, 2003
First Named Inventor	Dario B. Crosetto
Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	510974-600005

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	CCY	SPINKS, T.J. et al., "Physical characteristics of the ECAT EXACT3D positron tomograph," Phys. Med. Biol., 2000, pp. 2601-2618.	
	CCZ	WIENHARD K. et al., "The ECAT HRRT: Performance and First Clinical Application of the New High Resolution Research Tomograph," No Date.	
	CDA	DAHLBOM, M. et al., "Performance of a YSO/LSO Phoswich Detector for use in a PET/SPECT System," IEEE Transactions on Nuclear Science, June 1997, pp. 1114-1120, Vol. 44, No. 3.	
	CDB	CHERRY, S.R. et al., "MicroPET: A High Resolution PET Scanner for Imaging Small Animals," IEEE Transactions on Nuclear Science, June 1997, Vol. 44, No. 3.	
	CDC	DALBOM, M. et al., "Whole-Body Positron Emission Tomography: Part I. Methods and Performance Characteristics," Journal of Nuclear Medicine, June 1992, pp. 1191-1199, Vol. 33, No. 6.	
	CDD	MORENO-CANTU, J.J. et al., "Evaluation of the ECAT EXACT HR <sup>+</sup> 3D PET Scanner in <sup>15</sup> O-water Brain Activation Studies," IEEE, 1997, pp. 1280-1284.	
	CDE	DAHLBOM, Magnus et al., "Methods for Improving Image Quality in Whole Body PET Scanning," IEEE Conference Record 1991, pp. 1587-1592.	
	CDF	BRUCKBAUER, T. et al., "Evaluation of the ECAT EXCAT HR with ACSII for Clinical Routine 3D Measurements," 1996, pp. 1378-1382.	
	CDG	MORENO-CANTU, J.J. et al., "Evaluation of the ECAT EXACT HR <sup>+</sup> 3D PET Scanner in <sup>15</sup> O-water Brain Activation Studies: Dose Fractionation Strategies for rCBF and Signal Enhancing Protocols," IEEE Transactions on Medical Imaging, Dec. 1998, pp. 979-985, Vol. 17, No. 6.	
	CDH	SHAO, Yiping et al., "Evaluation of Multi-Channel PMT's for Readout of Scintillator Arrays," 1996, pp. 1055, 1059.	
	CDI	SCHMAND, M. et al., "Performance Evaluation of a New LSO High Resolution Research Tomography - HRRT," No Date.	
	CDJ	BRIX, Gunnar et al., "Performance Evaluation of a Whole-Body PET Scanner Using the NEMA Protocol," Journal of Nuclear Medicine, Oct. 1997, pp. 1614-1623.	
	CDK	CROSETTO, Dario B., "A modular VME or IBM PC based data acquisition for multi-modality PET/CT scanners of different sizes and detector types," Presented at the IEEE Nuclear Science Symposium and Medical Imaging Conference, Lyon, France, 2000, pp. 1-20.	
Examiner Signature		Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Substitute for Form 1449B/PTO  
U.S. PATENT AND TRADEMARK OFFICE  
INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT  
(use as many sheets as necessary)

Sheet 8 of 8

Complete if Known	
Application Number	10/706,821
Filing Date	November 10, 2003
First Named Investor	Dario B. Crosetto
Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	510974-600005

## OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	CDL	CROSETTO, Dario B., "Real-time, programmable, digital signal-processing electronics for extracting the information from a detector module for multi-modality PET/SPECT/CT scanners," Presented at the IEEE Nuclear Science Symposium and Medical Imaging Conference, Lyon, France, 2000, pp. 1-8.	
	CDM	CROSETTO, Dario B., "Saving lives through early cancer detection: Breaking the current PET efficiency barrier with the 3D-CBS," Presented on May 16, 2001 at the University of Geneva, Switzerland.	
	CDN	CROSETTO, Dario B., "400 <sup>+</sup> times improved PET efficiency for lower-dose radiation, lower-cost cancer screening," 2000, pp. 1-200.	
	CDO	Wienhard, Klaus et al., "The ECAT EXACT HR: Performance of a New High Resolution Positron Scanner," Journal of Computer Assisted Tomography, pp. 110-118; January/February 1994.	
	CDP	DeGrado, Timothy R. et al., "Performance Characteristics of a Whole-Body PET Scanner," The Journal of Nuclear Medicine, August 1994, pp. 1398-1406, Vol. 35, No. 8.	
	CDQ	Smith, Wesley et al., "Calorimeter Trigger," Technical Overview, DoE/NSF Review, pp. 1-29; <a href="http://www.hep.wisc.edu/wsmith/cms/Lehman98_Cal.pdf">http://www.hep.wisc.edu/wsmith/cms/Lehman98_Cal.pdf</a> , May 1998.	
	CDR	Beigbeder, Christopher et al., "An Update of the 2x2 Implementation for the Level 1 Calorimeter Triggers," LHCb 99-007, pp. 1-15, 29 April 1999.	
	CDS	Eisenhandler, Eric, "Hardware Triggers at the LHC," pp. 47-56.	
	CDT	Lackey, J. et al., "CMS Calorimeter Level 1 Regional Trigger - Conceptual Design," CMS Note 1998/074, November 13, 1998.	
	CDU	Crosetto, Dario B., "Detailed Design of the Digital Electronics Interfacing Detectors, First-Level Triggers, and Higher Levels of Trigger with Flexible Configuration Parameters," LHCb 99-006, TRIG, 30 March 1999.	
	CDV	Technical Data, "biograph - The Imager for Life," Siemens Medical Systems, Inc., Journal of Nuclear Medicine, May 2001, article 369, p. 998.	
Examiner Signature		Date Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional).

<sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.